CLAIMS:

1. An automated method for processing and imaging a first and second plurality of samples, comprising:

processing at least one sample from the first plurality of samples;

imaging the at least one sample from the first plurality of samples, while also being capable of simultaneously processing at least one sample from the second plurality of samples; and

imaging the at least one processed sample from the second plurality of samples.

2. The method of claim 1, wherein the step of processing the first or second plurality of samples may comprise rinsing, staining, bleaching, applying imaging media, optionally applying a coverslip, optionally removing a coverslip, and combinations thereof.

3. The method of claim 1, wherein ~~providing~~ the first and second plurality of samples are deposited ~~comprises disposing the first and second plurality of samples~~ in two discrete locations on a sample stage.

4. The method of claim 1, wherein the step of processing the at least one sample from the first plurality of samples comprises simultaneously processing the first plurality of samples.

5. The method of claim 1, wherein the step of imaging the at least one sample from the first plurality of sample comprises sequentially imaging samples from the first plurality of samples.

6. The method of claim 1, wherein the step of processing the at least one sample from the second plurality of samples comprises simultaneously processing the second plurality of samples.

7. The method of claim 1, wherein the step of imaging the at least one sample from the second plurality of samples comprises sequentially imaging samples from the second plurality of samples.

~~8. The method of claim 1, wherein providing the first and second plurality of samples comprises disposing the first and second plurality of samples on a sample stage.~~

~~9~~8. The method of claim 3~~claim 8~~, wherein the sample stage is a stage of an imaging device.

~~10~~9. The method of claim 1, further comprising imaging the processed samples from the second plurality of samples while processing at least one sample from the first plurality of samples.

~~11~~10. The method of claim 1, further comprising transporting the first and second plurality of samples to a sample processing unit or imaging unit by moving a sample stage in a translational motion, rotational motion, or both.

~~12~~11. An automated method for processing and imaging a plurality of samples, comprising:

processing at least one sample while imaging another one or more samples, wherein processing comprises staining, rinsing, bleaching, applying an imaging solution, optionally applying a coverslip, optionally removing a coverslip, or combinations thereof.

~~13. The automated method of claim 12, wherein the plurality of samples comprise two or more groups of samples.~~

~~14. The method of claim 12, comprising sequentially imaging the plurality of samples.~~

~~15~~12. The method of claim ~~12~~11, comprising simultaneously processing two or more samples from the plurality of samples.

~~16~~13. A system for processing and imaging a plurality of samples, comprising:

a sample processing unit configured to process one or more of the plurality of samples;

an image acquisition unit operatively coupled to the sample processing unit; and

a sample conveyance unit configured to transport one or more of the plurality of samples to the sample processing unit, image acquisition unit, or both,

wherein the system is configured to process at least one sample from the plurality of samples while simultaneously imaging another sample from the plurality of samples.

~~17~~14. The system of claim ~~16~~13, wherein the sample conveyance unit comprises:

a sample stage configured to receive the plurality of samples; and

a driving member configured to provide a translational movement, rotational movement, or both to the sample stage.

~~18. The system of claim 17, wherein the sample stage comprises a continuous surface.~~

~~19. The system of claim 16, wherein the image acquisition unit comprises one or more microscopes.~~

~~20. The system of claim 19, wherein the sample conveyance unit is an integral part of the one or more microscopes.~~

~~21. The system of claim 16, wherein the image acquisition unit is divided by color channel into two or more separate optical engines.~~

~~22. The system of claim 16, wherein yhe image acquisition unit is divided by magnification factor into two or more separate optical engines.~~

~~23. The system of claim 16, wherein the image acquisition unit is divided by acquisition numerical aperture in to two or more separate optical engine.~~

~~24. The system of claim 16, wherein the image acquisition unit is divided by both color channel and magnification factor into two or more separate optical engines.~~

~~25~~15. The method of claim 1, further comprising acquiring a low magnification image of each sample that relates scan area of each sample and grouping the samples into the first and second plurality of samples based on at least the scan area of each sample.

~~26~~16. The method of claim 1, further comprising imaging the first and second plurality of samples before any processing is performed on said sample to obtain background images.

~~27~~17. The method of claim 1, further comprising imaging one of the first or the second plurality of samples, prior to processing, while the other set of sample is being processed, to establish background images.

~~28~~18. The method of claim 15~~claim 24~~, wherein the sample is grouped into said first and second plurality of samples based on the scan area of each sample, as well as information about the process, to achieve minimum time-to-completion grouping of samples.